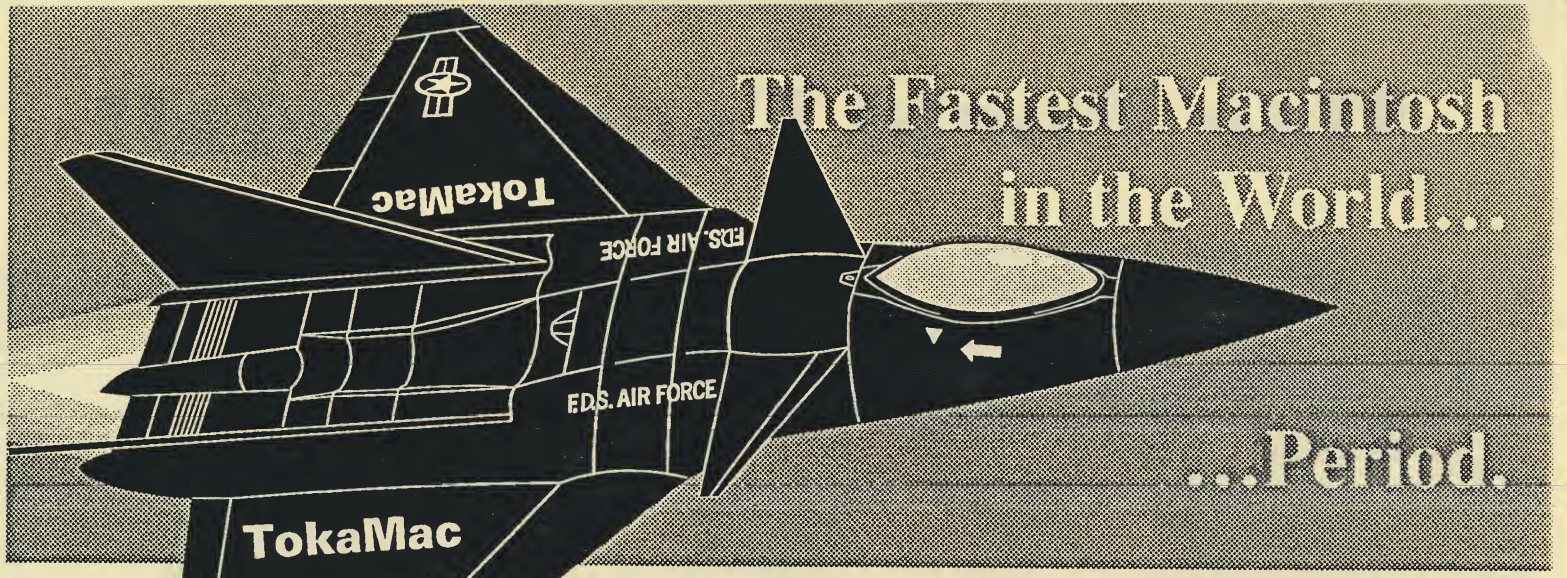


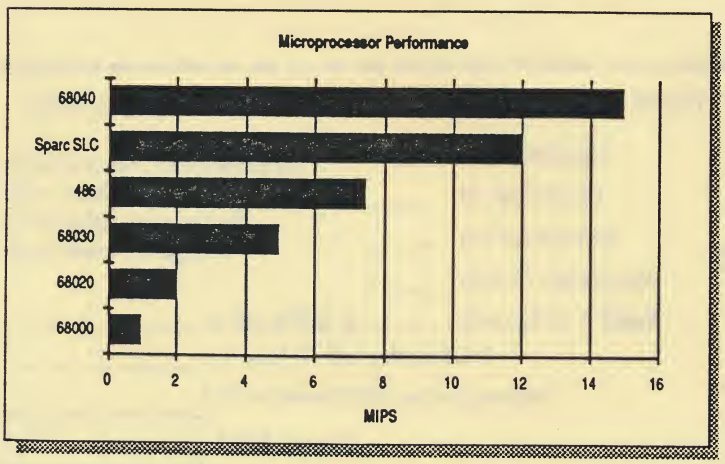
The Fastest Macintosh in the World...

...Period.

You need performance. How much? As much as you can get, right? Apple has helped out by introducing machines that cost less than ever while still delivering the superb Macintosh user interface. We're taking it the rest of the way with ***TokaMac***—the fastest accelerator available. So when you buy any of the Processor Direct machines (LC, SI, CI, and SE/30), we have the speed you need at a price you can live with. Here's why:

Unbeatable Performance

There's never been anything like the Motorola 68040 in a desktop computer before. It delivers a full 15 Million Instructions Per Second (MIPS). With a built-in math coprocessor and cache memory, it can handle floating-point calculations up to ten times faster than the 030 that's in many of today's fastest machines. That's why NeXT, Apple, and other major vendors have chosen the 040 for their high-end machines.



Complete Mac Software Compatibility

The 040 was designed to be compatible with current Macintosh software, so all of the applications you're using with your Macintosh now, will benefit from the blazing speed of the ***TokaMac***.

Quick, Easy Installation

It's as simple as plugging the ***TokaMac*** into the Processor Direct slot of your Macintosh. We give you an illustrated guide that shows you what to do step-by-step. If you have a problem, just call our tech support department. They're experienced and ready to help.

Memory Upgrades - No Problem

TokaMac uses the SIMM memory that's already in your machine - so upgrading to maximum memory is a snap.

No Risks

Every board comes with a one-year warranty. In addition, if you're not satisfied with our product, just return it within 30 days for a prompt and full refund. With Fusion Data Systems' products - satisfaction is guaranteed.

We want to be your performance company.

Fusion Data Systems is a new name for some folks who've been in the Mac business since the beginning. We understand what users need because we're users ourselves. Try us and see.

"Fusion Power for Your Mac"

FUSION
DATA SYSTEMS

Represented by **Quantum Leap Systems**
15875 Highland Ct. - Solana Beach, CA 92075 USA
(619) 481-8427 or FAX (619) 481-3192

Ask also about Acceler88 from Fusion,
NuBus application accelerator based on Motorola 88100.

Mac World Expo Special!

January - 1991

20% off TokaMac 68040 Accelerator!

Normally ~~$2995~~

With MW Expo voucher $2396

To take advantage of this expo special price:

1) come visit us in booth #1239 in Moscone Hall, or

2) send the information at the bottom of the sheet with payment to Quantum Leap Systems, 8050 Camino Huerta, San Diego, CA 92122, or

3) call us after the show at (619) 457-0781 or fax us at (619) 457-0199.

Payment may be made by check, bank draft, money order, purchase order, VISA, or MasterCard. Checks and bank drafts must be payable to **Quantum Leap Systems**. Payment must be in U.S. dollars drawn on a U.S. bank. Please make payment for $2396.00 plus $25.00 shipping, handling, and insurance for a total of $2421.00 per TokaMac board delivered via Federal Express in the U.S. California residents add 7% for sales tax ($167.72/board). Please include street address, we cannot ship to P.O. boxes. International customers, contact us for shipping costs.

Please call us for information regarding volume discounts, educational pricing, and developer pricing. Allow 3 to 5 weeks for shipping from product release date March 7, 1991. Offer redeemable with voucher until March 31, 1991.

Name _____

Street Address _____

City _____ State _____ ZIP _____

Country _____

Phone# _____

Please print clearly.

Method of payment (please circle one):

Check or Bank Draft VISA MC Money Order PO

Credit Card number: | | | | | | | | | | | | | | | | |

Expiration Date: _____ Name on Card: _____

Please send me TokaMac boards in the following quantities:

Macintosh LC _____

Macintosh SI _____

Macintosh IIci _____

Macintosh SE/30 _____

Total # of boards _____ **x 2396.00 =** _____

I enclose check, money order, bank draft, or purchase order for the amount below or charge my credit card.

In California, add 7% Sales Tax _____

Shipping charges ($25/board in U.S.) _____

Grand Total _____

Acceler88

Coprocessor system for Apple Macintosh® II with Motorola 88K

by Fusion Data Systems (FDS)

General Description

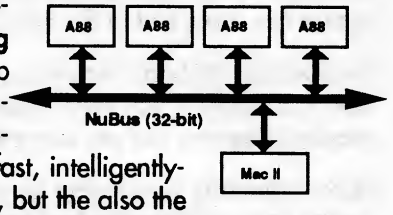
The ***Acceler88*** card is a plug-in coprocessor card for the Apple Macintosh II series of computers, featuring the fast Motorola 88100 RISC microprocessor running at 25MHz for blazing performance.

Fusion is a state-of-the-art parallel object-oriented operating system, the realization of a $6 million DARPA-funded Experimental Systems Project carried out by the Microelectronics and Computer Technology Corporation (MCC) and FDS of Austin, Texas.

Together ***Acceler88*** and ***Fusion*** offer mainframe to minisuper computing capabilities in a desktop system with unrivalled price/performance benefits. This makes the *Acceler88* ideal for scientific computing, as an engineering tool, or as an application accelerator for OEM's and systems integrators looking for a competitive edge.

Parallel Processing

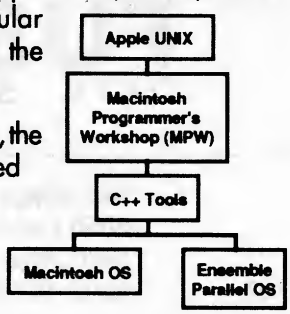
In addition to the software support of the unique *Fusion* parallel OS, the *Acceler88*'s extremely fast NuBus Direct Memory Access (DMA) I/O allows multiple boards to communicate with one another to create **parallel processing systems** for true desktop supercomputing applications. Users not only receive the benefits of a fast, intelligently-implemented RISC CPU, but the also the ability to increase performance by adding more *Acceler88*'s.



Software Standards

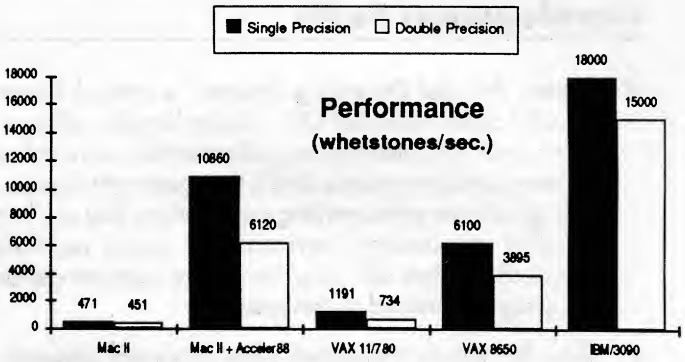
Development tools run under Apple **UNIX**, A/UX, combining the benefits of the popular **Macintosh** user interface with the power of the UNIX standard.

Compiler tools are based on **C++**, the industry standard object-oriented programming language created by AT&T.



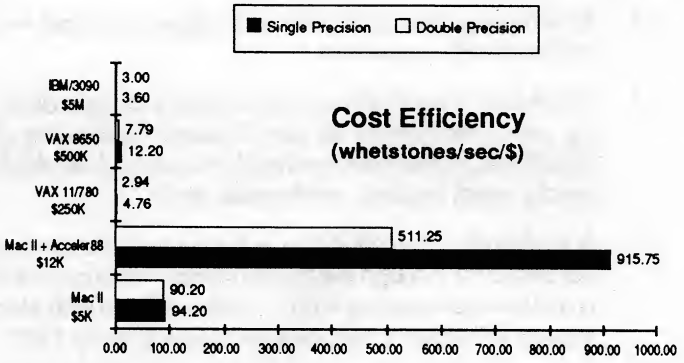
Features and Benefits

High Performance - Up to 30x Mac II (68020/881 - 16MHz) performance.



Low Maintenance - The *Acceler88* plugs into a single NuBus slot. No army of maintenance technicians required. FACT: Maintenenance costs usually exceed the purchase price of mainframe and minisuper computers. *Acceler88* comes with a 1-year warranty & extended coverage is available.

More Bang for a Buck - 6-10x more cost effective than Mac II. 2 orders of magnitude more cost effective than mainframes and minisupers. (Based on Whetstones/sec/$). *Fusion* OS and C++ development tools are included in the purchase price.



Time Savings - No more mainframe charges. No more waiting for time slots. Even make batch runs in the background under MultiFinder while you continue to use your Mac for other tasks!

High-Level Language Compatibility - Standard C code runs with little modification. Development tools run under Apple Unix (A/UX) and under Macintosh System 7.0 upon its release.

Object Oriented Programming - C++ extensions bring you the benefits of the world's most popular OOP language.

Parallel Processing - The Fusion OS and fast NuBus I/O allow multiple *Acceler88*'s to work together. Users not only receive the benefit of a fast RISC CPU, but the unique ability to increase application performance by adding more *Acceler88*'s (up to four in a single Mac II).

Fast NuBus I/O - The *Acceler88* uses Direct Memory Access (DMA) to provide up to 37.5 MB/second bandwidth, eliminating host I/O bottlenecks and allowing ultra-fast video response.

Network Capability - A Mac II with *Acceler88* can act as a network compute server on Ethernet or LocalTalk.

Macintosh Friendly - FDS' over 12 years of experience w. Macintosh development ensures a natural interface with the Mac environment.

Macintosh and A/UX are registered trademarks of Apple Computer, Inc. NuBus is a trademark of Texas Instruments.

FDS Acceler88
Coprocessor System for Apple Macintosh II w. Motorola 88K

Development Tools

- ✔ ***Fusion Parallel Operating System*** - a state-of-the-art parallel object-oriented OS. *Fusion* handles all communication, synchronization, and control for any number of associated processors, and is transparent to the user. This greatly simplifies writing applications that run in a parallel processing environment using multiple Acceler88's, thus allowing the user to concentrate on the program instead of the system.
- ✔ ***C++***, the industry-standard object-oriented programming language from AT&T, is included with the *Fusion* OS. Tools provided include a C++ compiler, linker, loader and a symbolic debugger integrated into Apple UNIX (A/UX). Math and other special purpose libraries are also included.

Three principles characterize the *Fusion* programming paradigm:

- *Fusion*-supported applications are object-oriented and architecturally insensitive.
- Parallelism is implicit in an application's design, deriving concurrency from an object-based partitioning of algorithms, rather than from explicit cues (such as *doall, pardo, send, receive, rendezvous*, etc.)
- A workstation is available as a host to provide services not available through the *Fusion* kernal. At present this is a Macintosh running A/UX. *Fusion* will run with Mac System 7.0 when it becomes available in early 1991.

Customer Support

FDS and QLS offer a one-year limited warranty on hardware and 30 days of free technical support. Extended warranties for hardware and extended technical support are available.

QLS Part #: AC88-8 (8 MB RAM version)

Specifications of the Acceler88 Board

CPU:	**Motorola MC88100 (25 MHz) RISC Microprocessor w. double precision floating point unit (IEEE 754) and 16KByte cache.**
	Five concurrent pipelines support four fully independent execution units. Most instructions execute in one clock cycle, with up to five operations per clock cycle.
Memory:	**2 to 32MB custom low-power DRAM**
Memory Management:	**Dual 88200 CMMU's for separate instruction and data busses**
NuBus I/O:	**DMA bandwidth up to 37.5MB/sec.**
Cache I/O:	**Data and instruction caches support 80MB/sec. bandwidth**
Size:	**Fits in single NuBus slot.**
Multiple Boards:	**4 in II, IIx, and IIfx, 2 in IIci and IIcx, 1 in IIsi**

Acceler88: A System for the Future

FDS looks forward to extending the performance of the *Acceler88* system in 1991, by offering a version using the successor to the Motorola 88100, the 88110, with performance five times that of the 88100.

Each *Acceler88* board has two custom high-speed expansion connectors which allow connection to external multiprocessor servers that are currently under development.

FDS is currently developing an emulator for the 88open binary compatibility standard so that 88open UNIX applications can be run on *Acceler88*.

FUSION
DATA SYSTEMS

QLS

Quantum Leap Systems
15875 Highland Ct.
Solana Beach, CA 92075
(619) 481-8427 or FAX: (619) 481-3192

San Diego office
8050 Camino Huerta
San Diego, CA 92122
(619) 457-0781 or FAX: (619) 457-0199